

PATENT APPLICATION

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Applicant, Rocco D'Antonio, a citizen of the United States of America and resident of Cherry Hill, County of Camden, State of New Jersey, hereby submits a nonprovisional Patent Application based on the previously filed Provisional Application, No.

60/199,557, for the new and useful

PAPER LINER FOR PLASTIC GROCERY BAGS

set forth in the following specification and claims:

## BACKGROUND OF THE INVENTION

### 1. Field

This invention is in the field of liners for grocery bags, more particularly, the use of light weight paper liners for plastic grocery bags.

### 2. State of the Art

Both plastic and paper grocery containers are popularly called "bags". "Bags" were first measured by how many pounds of sugar they held; i.e., a 1-lb. bag was so named because it held one pound of sugar. Similarly, a 2-lb. bag held two pounds of sugar. "Sacks" are measured as a certain portion of a barrel; i.e., a 1/6-barrel sack holds one-sixth of a full barrel. Containers the consuming public are exposed to in supermarkets and small grocery stores are technically referred to as "sacks" by the container industries (i.e., for both paper and plastic). Therefore, for purposes of this application, both paper containers and plastic containers seen in the supermarket industry will be referred to as "sacks".

Currently, paper grocery sacks are manufactured in three standard sizes:

1/6-barrel paper sack, having a 12-in. x 7-in. base and a 17-in. height,

1/7-barrel paper sack, having a 12-in. x 7-in. base and a 14-in. height, and

1/8-barrel paper sack, having a 10.5-in. x 6.5-in. base and a 14-in. height.

In addition, 1/6- and 1/7-barrel paper grocery sacks are

also available with paper handles commonly referred to as "paper handle sacks". 1/6- and 1/8-barrel paper sacks are the most popular in the industry, most factories are geared up to manufacture them, and production capacity considerably exceeds market demand. 1/7-barrel paper sacks are not popular; only a few factories are geared up to manufacture them, and production capacity and market demand is minimal. Paper handle sacks are fairly popular; there are three manufacturers of the 1/6-barrel handle sack and two manufacturers of the 1/7-barrel handle sack, and production capabilities exceed market demand at this time.

Plastic grocery sacks are manufactured in four standard sizes. Plastic sacks are manufactured with handles. The following are dimensions of the four sizes:

1/6-barrel plastic sack has a 12-in. x 7-in. area formed by its perimeter when opened and a 23-in. height when laid flat, "Opened" is intended to mean that the container is fully extended and expanded to its full capacity. "Laid flat" is intended to mean that the plastic sack is unfolded without being opened to hold items. The 1/6-barrel sack measures approximately 12.5 in. from the base to the top edge of the sack between the handles, the collar, when fully opened for holding groceries. Note: for purposes of this application, the top edge of a plastic sack between the handles will be referred to as the "collar".

1/7-barrel plastic sack, having a 12-in. x 7-in. area formed

by its perimeter and a 21-in. height laid flat,  
1/8-barrel sack, having a 11.5-in. x 6.5-in. area formed by  
its perimeter and a 22-in. height laid flat, and  
Big-Bag, plastic sack, having a 13-in. x 8-in. area formed  
by its perimeter, expanded, and three different  
heights, 23", 24", & 25" when laid flat.

It should be understood that the heights of the above list of  
plastic sacks are approximate. Both the height to the top of the  
handles varies slightly from manufacturer to manufacturer, and  
the height to the collar varies slightly from manufacturer to  
manufacturer. The 1/6-barrel sack, also nominally holding one-  
six (1/6) of a barrel, is the most popular.

Supermarkets choose grocery sacks based on two key criteria:  
cost and consumer preferences. Although cost is usually the  
predominate factor, the objective is to minimize costs while  
addressing consumer preferences.

The cost to manufacture 1/6-barrel paper sacks is  
approximately three times the cost to manufacture 1/6-barrel  
plastic sacks, approximately \$0.045 per paper sack compared to  
\$0.015 for plastic sacks. The cost to manufacture 1/6-barrel  
paper handle sacks is almost five times the cost to manufacture  
1/6-barrel plastic sacks, approximately \$0.07 per paper handle  
sack compared to \$0.015 for plastic sacks. A study titled  
"Enhancing Consumer Satisfaction Through Effective Front-end  
Management" by Willard Bishop Consulting and funded by the  
American Forest and Paper Association (AF & PA) found that an

average U.S. supermarket spends \$87,000 (representing inexpensive plastic) to \$195,000 (representing paper handle sacks or doubling bagging) annually for grocery sacks or about .6% to 1.3% of sales.

The study also found that 58% of consumers prefer paper to plastic, while 36% prefer plastic. The main benefit of the plastic grocery sack is that it has a handle and is therefore easy to carry. However, consumers said paper has more of the attributes they are looking for in a grocery sack including, strength, size, stability, and structural rigidity - i.e., stands up in a car. Research from the report clearly shows that consumers prefer paper to plastic and that consumers like the following attributes in their grocery sacks: handle, strength, size/capacity, and stability.

It is a popular perception of the consumer that insertion of a paper sack into a plastic sack adds carrying strength to the plastic sack. Actually, insertion of a paper liner adds structural rigidity (i.e., makes it stand up in a car) and burst-and-tear-resistance strength to the plastic sack, but insertion of a paper sack does not add carrying strength.

Due to consumer preferences, there is a continuing trend in the supermarket industry across the country for consumers to request the use of a paper sack in a plastic sack. Therefore, supermarket clerks typically place a 1/6- or a 1/8-barrel paper sack into a plastic sack. This trend started as soon as the plastic sack was introduced into the supermarket industry,

estimated to be in the early 1980's. Some supermarkets have started using paper handle sacks to address consumer preferences. The Willard Bishop study also mentions the use of paper handle sacks instead of paper sacks in plastic sacks. However, either option comes at a considerable cost. A paper handle sack costs approximately five times more than a plastic sack and a paper sack in a plastic sack costs approximately four times more than a plastic sack.

Using a 1/6-barrel paper sack as a liner in a 1/6-barrel plastic sack is an inefficient use of paper. A 1/6-barrel paper sack has a height when opened and expanded of 17". The height of a 1/6-barrel plastic sack has a height, to the collar, of approximately 12.5" when opened and expanded. The 1/6-barrel paper sack would extend above the useable capacity of the plastic sack resulting in considerable waste. And, due to the height of the paper sack (17") and the height of the plastic sack to the top of the handle when opened and expanded (18" - 19"), the paper sack obstructs the handle area and the handle of the plastic sack is difficult to hold.

1/6-barrel paper sacks are designed to hold approximately 20 lbs. or approximately 12 items of groceries and therefore must be made from paper of sufficient strength to avoid bursting or tearing. Since the 1/6-barrel plastic sack is also designed to hold 20 lbs. of groceries, use of 1/6-barrel paper sacks as liners results in a considerable waste of expensive paper.

By contrast, for a 1/6-barrel plastic sack, this instant

- invention would provide a paper liner having approximate dimensions 12" x 7" x 12.5", fully opened and expanded, making the most efficient use of expensive paper! Therefore, this invention provides a solution to a long-felt but, as yet, an unmet need which others have failed to address.

It is also an intention of this invention to provide a paper liner that is lighter in weight than currently used paper sacks. Most popularly used 1/6-barrel paper sacks are produced in both 70-lb. and 75-lb. grades of paper, while most popularly used 1/8-barrel paper sacks are produced in 57-lb. grade paper. Grade of paper is determined by the weight of a 3,000-square-foot sheet of paper. For instance, a 3,000-square-foot sheet of 75-lb. grade paper would weigh 75 pounds. A paper liner of this invention, having dimensions 12" x 7" x 12.5", fully opened and expanded, using 45-lb. paper, would use 53% less paper than the conventional 1/6-barrel paper sack. It is contemplated that paper liners of this invention would utilize grades of paper from 35-lbs. to 50-lbs.

Although the pack sack (i.e., paper sack) loses market share to plastic every year, the paper industry and its trade associations maintain the same objectives:

- sell more paper through the sale of paper grocery sacks  
(Note: paper sack sales are measured in tons, not units.),
- market the paper sack as the ideal product for packaging groceries at the super market,

- convince supermarkets and consumers that plastic is inferior because it is not as strong, holds less than paper, and is not as environmentally friendly,
- promote the countless surveys stating that paper is THE preferred choice of consumers,
- aggressively promote the handle sack, a paper sack with handles as the preferred choice for supermarkets and consumers In fact, the paper industry trade associations spend most of their time and resources supporting the handle sack.

It would not be in the interest of the paper industry or sack manufacturers to produce a paper liner for a plastic sack because it would go against every objective they have. A paper liner for a plastic sack would substantially decrease paper sales.

Manufacturing a paper liner that supplements plastic sacks not primarily designed to hold groceries would be an admission that their product is not cost effective as a grocery container.

Just like the paper industry, the plastic industry promotes the plastic sack as THE preferred choice for supermarkets and consumers. It would also not be in the interest of the plastic industry to promote a paper liner for a plastic sack. Making a paper liner for a plastic sack to add structural rigidity would be a tacit admission that their product has a key structural flaw - "it doesn't stand up on its own."

Some prior art provides for liners for containers: Meshberg, U.S. Pat. No. 5,343,901, is an insertable barrier liner for a



narrow neck dispensing container. LaFleur et al., U.S. Pat. 4,781,472, provides a liner for a large bulk bag for industrial use. Sherwood, U.S. Pat. 4,417,609, provides for bag stiffeners for containers for coupons. Spencer, U.S. Pat. 4,138,054, provides for corrugated cardboard to be inserted into standard bags for carrying purchased commodities.

However, none of the prior art provides for a light weight paper liner to be inserted into a standard plastic grocery sack that utilizes space within the plastic sack efficiently.

#### OBJECTS OF THE INVENTION

It is the overall object of this invention to provide a cost effective method of addressing key consumer preferences in packaging in the supermarket industry. That is, it is a primary object of this invention to provide paper liners for plastic grocery bags. It is an object of the invention to make more efficient use of paper by providing a paper liner that would conform more closely in shape and size to the plastic sack than conventional paper sacks. It is an object of the invention to use less paper by providing a paper liner that would be made of lighter weight paper than conventional paper sacks. It is another object of this invention to provide the supermarket customer with a plastic container that has the structural rigidity of a paper sack, but yet is easy to carry. And it is an object of this invention to provide a paper liner for a plastic sack to give shape and standing ability to the plastic sack, but not to provide a stand alone paper sack intended to carry

• groceries on its own.

#### SUMMARY OF THE INVENTION

This invention provides for paper liners for plastic grocery sacks that are both space efficient and light weight. A preferred embodiment will be a paper liner having dimensions of 12" x 7" x 12.5" to fit exactly or almost exactly into a 1/6-barrel plastic sack base and come up to the collar line between the handles. This creates a container (i.e., a paper liner within a plastic sack) with 23% more capacity than a 1/8-barrel paper sack inserted into a 1/6-barrel plastic sack and use 18% less paper by weight than the 1/8-barrel paper sack. Also, this would create a container that would use 53% less paper than a 1/6-barrel paper sack inserted into a 1/6-barrel plastic sack and allows easy use of the plastic handles. For the other plastic sacks, paper liners would have the following dimensions:

- 12" x 7" x 10.5",
- 11.5" x 6.5" x 12.5", and
- 13" x 8" x 13".

It is contemplated that this instant invention would utilize lighter grades of paper between 35-lb. to 50-lb. paper.

An alternative embodiment of the paper liner would have dimensions 12" x 7" x 14", the standard dimensions of a 1/7-barrel paper sack, but use paper of grades 35-lb. to 50-lb, rather than the 57-lb. to 75-lb. paper now used and necessary for stand alone paper grocery sacks. The purpose of the alternate embodiment is to make possible for manufacturers to utilize

existing paper container producing equipment with the lighter weight paper.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The best mode presently contemplated for carrying out the invention in actual practice is shown in the accompanying drawings, in which:

Fig. 1 is an elevation of a standard 1/6-barrel plastic grocery sack lined with a standard 1/8-barrel paper sack shown mostly in broken lines, representing the prior art.

Fig. 2 is a bottom plan view of the plastic grocery sack lined with a standard paper sack as shown in Fig. 1.

Fig. 3 is an elevation of a 1/6-barrel plastic grocery sack lined with a paper liner of the invention shown in broken lines, a preferred embodiment of this invention.

Fig. 4 is a bottom plan view of a plastic grocery sack lined with the paper liner as in Fig. 3.

Fig. 5 is an elevation of a 1/6-barrel plastic grocery sack lined with a paper liner of the invention, the paper liner having the same dimensions as a standard 1/7-barrel paper sack but made of a lighter weight paper, representing an alternate embodiment of the invention.

Fig. 6 is a bottom plan view of the plastic grocery sack lined with the paper liner of Fig. 5.

#### DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENT

A prior art sack arrangement is shown in Figs. 1 and 2. For purposes of illustration, Fig. 1 shows a standard 1/6-barrel

plastic grocery sack 20 lined with a standard 1/8-barrel paper grocery sack 22 (hidden lines). Figs. 1 through 6 are not drawn exactly to scale, but they accurately show the functional features of this invention. Figs. 1 and 2 show both the plastic sack 20 and the paper sack 22 fully extended and expanded for the purpose of carrying groceries. The area 32 between the top of the paper sack 34 and the top edge of the plastic sack between the handles or collar 28 represents that part of the paper sack 22 which provides no carrying capacity; i.e., wasted paper. Further, the area 32, particularly with heavy sack paper, can interfere with holding the handles 26 of the plastic sack. The space 30 between the paper sack 20 and the perimeter 36 formed by the plastic sack 20 represents unused space of the plastic sack 20 which could have been used to carry groceries, Figs. 1 and 2. Fig. 2 shows the perimeter 36 of the plastic sack 20 surrounding the base of the paper sack 22; again, the space 30 between the paper sack 20 and the perimeter 36 formed by the plastic sack 20 represents unused space of the plastic sack 20 which could have been used to carry groceries.

Figs. 3 and 4 show a preferred embodiment of this invention; a paper liner 24 is inserted into a standard plastic grocery sack 20. For purposes of illustration, the paper liner 24 of this invention has dimensions 12" x 7" x 12.5" to fit into a 1/6-barrel plastic sack. The top 34 of the paper liner comes exactly or almost exactly up to the collar line 28 between the handles thereby wasting no paper and not interfering with the use of the

handle. As Fig. 4 illustrates, there is little or no space 40 between the perimeter 36 of the plastic sack 20 and the base of the paper liner 24.

In the preferred embodiment, it is intended to make a paper liner whose base is as nearly congruent as possible to the area formed by the perimeter of the plastic sack when both are fully extended and expanded with a height nearly equal to the collar line 28 between the handles thereby wasting no paper.

"Congruent" is intended to mean that the base of the paper liner 24 and the area within the perimeter 36 of the standard plastic sack, with both fully extended and expanded, will coincide or approximately coincide at all points when both are superimposed on each other. Therefore, other paper liners of the preferred embodiment would have the following dimensions:

- 12" x 7" x 10.5",
- 11.5" x 6.5" x 12.5", and
- 13" x 8" x 13".

It is also contemplated that the preferred embodiment utilize grades of paper between 35-lb. to 50-lb. Such light weight paper, although not usable for stand alone paper grocery sacks, still gives shape to the plastic sack, helps the sack stand up on a surface such as in a car, provides an open space in the sack for more easily packing groceries therein, increases the tear resistance of the sack, but minimizes the paper use and, thus, the cost of the paper liner and the combination sack. It provides the advantages of both the plastic and paper sacks, but

does not use the combination of both the plastic sack and the more expensive heavy stand alone paper sack as is currently used. The invention involves the realization that the advantages of both the plastic and paper sacks can be achieved by the use of a light weight paper liner in the plastic sack where the light weight paper liner is of approximately the same size as the plastic sack so that it fits well into the plastic sack. This means that the perimeter of the base of the paper sack is approximately equal to the perimeter of the base of the plastic sack that it fits into. A regular stand alone paper sack is not needed when used in a plastic sack of approximately the same base size. With a good fit of the paper sack in the plastic sack, the plastic sack provides the support and strength to the lighter weight paper sack to hold it together when filled with groceries and the lighter weight paper sack still gives all the advantages of a paper sack when in and supported by the plastic sack.

Figs. 5 and 6 show an alternate embodiment of this invention; a paper liner 25 is inserted into a standard plastic grocery sack 20. The paper liner 25, of this embodiment, has dimensions 12" x 7" x 14" to fit into a 1/6-barrel plastic sack. Figs. 5 and 6 are not drawn exactly to scale, but they accurately show the functional features of this invention. As in the prior art embodiment of Fig. 1, the top 38 of the paper liner 25 is taller than the collar 28 of the plastic sack 20. As Fig. 6 illustrates, there is little or no space 40 between the perimeter 36 of the plastic sack 20 and the base of the paper liner 25. In

• this alternate embodiment, the base of the paper liner, as in the  
• embodiment of Figs. 3 and 4, is as nearly congruent as possible  
to the area formed by the perimeter of the plastic sack when both  
are fully extended and expanded. While the top 38 of the liner  
rises above the collar line 28, it is below the top 27 of the  
handles, and with lighter weight paper is more easily folded or  
pushed down and out of the way thereby enabling easy use of the  
handles 26 of the plastic sack. Since the dimensions of the  
liner are the same as for the standard 1/7-barrel paper sack,  
currently existing manufacturing equipment can be used to produce  
these paper liners.

While specific constructions and materials for the invention  
have been disclosed, various materials and constructions could be  
used. The present invention has been disclosed in connection  
with the preferred embodiment thereof, it should be understood  
that there may be other embodiments which fall within the spirit  
and scope of the invention as defined by the following claims.